Flat plate antenna with a rotating field, comprising a central loop and eccentric loops, and system for identification by radiofrequency

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Background of the invention

The invention relates to a substantially flat rotating field antenna comprising a central loop and coplanar eccentric loops.

State of the art

Radiofrequency identification systems enable contact-free data exchange by inductive coupling between a read unit and objects to be identified, conventionally tags. The energy necessary for the tags is taken from the electromagnetic field.

The read unit emits an electromagnetic field in an exchange zone limited by the emitting power of the read unit. The data are transmitted between the read unit and the tag by modulation of the electromagnetic field. Due to the shape of the field lines, data exchange can only be performed for particular relative positions of the tags with respect to an antenna of the read unit.

A read unit equipped with an antenna having a single flat loop plane enables data to be transferred in the centre of the antenna to a correctly directed tag, in particular if it is parallel to the plane of the loop of the antenna. The inductive coupling between the antenna and a tag positioned in a plane orthogonal to the plane of the loop is weaker and often insufficient to detect the tag. This is due to the fact that, in the centre of the antenna, the magnetic field lines are